

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject High current processes		Code 1010312331010306105
Field of study Electrical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 2 / 3
Elective path/specialty Distribution Devices and Electrical	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 15 Classes: - Laboratory: - Project/seminars: -		No. of credits 1
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 1 100%
Responsible for subject / lecturer: dr hab. inż. Jerzy Janiszewski email: jerzy.janiszewski@put.poznan.pl tel. 61 665 20 28 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of the construction and operation of electrical apparatus and installations, and measuring apparatus and its use (K_W11 +).
2	Skills	The ability to obtain information from the literature and critical analysis (K_U01 ++).
3	Social competencies	He understands the need to promote and implement the effects of technical progress (K_K02).
Assumptions and objectives of the course: Reach expanded knowledge about the processes associated with the great currents and their influence on the design of the busbar		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Have an extended knowledge of dynamic and heat phenomena in the high current busbar and contact current; knowledge for construction of high-current circuits and their impact on the environment. - [[K_W05 +]]		
Skills: 1. Can prepare a specification of complex equipment or electrical system; he knows the legal aspects, as well as other non-technical, such as the impact on the environment; able to use the standards for operation of electrical equipment. - [[K_U11 +]]		
Social competencies: 1. Able to think and act in a professional manner and present their own ideas and take discussion of environmental technology. - [[K_K01 +]]		
Assessment methods of study outcomes		
- assessment of knowledge and skills on problematic discussions or on the basis of an example prepared by a student (project or program supporting elements of design) - assessment of activity in each class, based on participation in the discussion of the presented concepts.		
Course description		

Phenomena in high-current busbars with special attention to skin and proximity effects. The impact of ferromagnetic masses on busbars current distribution. Distribution of current in multi-paths; energy flows between current lanes. Phenomena in contacts for very high conducting current ; high current arc. Presentation of design solutions for busbars and contact systems.		
Basic bibliography:		
1. Stanisław Kulas - Tory prądowe i układy zestykowe, Wydawnictwo Politechniki Warszawskiej, W-wa 2008		
2. Janusz Turowski - Elektrodynamika techniczna, WNT W-wa 1967		
3. Tadeusz Cholewicki - Elektrotechnika teoretyczna cz. II ? WNT W-wa 1971		
Additional bibliography:		
1. Maksymiuk J.: Aparaty elektryczne, PWN, Warszawa, 1995.		
2. Sprawocznik po rasczietu i konstruiowaniu kontaknych czastiej silnotocznych elektriczeskich aparatow, pod red. W.W. Afanasiewa, Energoizdat, Leningrad 1988 r.		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lecture classes	15	
2. Consultation	5	
3. Prepering for classes	15	
Student's workload		
Source of workload	hours	ECTS
Total workload	35	1
Contact hours	20	1
Practical activities	0	0